

REPORT NO. 84-2-10
ALEXANDRIA FIELD OFFICE

3430
MARCH 1984

GROWTH IMPACT AND INCIDENCE OF ANNOSUS ROOT ROT
ON THREE PLANTATIONS ON THE CANEY RANGER DISTRICT
KISATCHIE NATIONAL FOREST, LOUISIANA
JANUARY, 1984

by

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Abstract

Diameter growth in the last five years measured from increment borings collected in two loblolly pine (Pinus taeda L.) plantations on the Caney Ranger District of the Kisatchie National Forest averaged only 1/2 inch and 5/8 inch, respectively. These plantations, aged 38 and 32, are infested with Heterobasidion annosum (Fr.) Bref. and presently show few canks or above ground symptoms. The fungus was not isolated from lateral root samples.

INTRODUCTION

In the spring of 1983 the Kisatchie National Forest requested a disease survey of three loblolly pine (Pinus taeda L.) plantations near Caney Lakes on the Caney Ranger District near Minden, Louisiana. District personnel wanted to decide whether these stands needed to be harvested within two years or if they could wait longer.

Plantation 31 (Compartment 22) of 28 acres contained Forest Service Research plots installed in 1967. This area was first thinned in December, 1968 and is presently 38 years old. The effects of prescribed burning and grass cover on annosus root rot were tested, and incidence of the disease was taken in 1975 on plots included in the present survey (Froelich, pers. comm.).

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Plantation 9 (Compartment 23) of 25 acres was thinned 5 to 6 years ago. At that time District personnel removed 5 and 6 inch diameter trees. The stand is presently 32 years old. In May, 1983 several annosus conks were observed here. Plantation 1 (Compartment 22) of 204 acres is separated by only a road from plantation 9. It was last thinned in 1971. No annosus conks were observed in May, 1983.

METHODS

To measure the extent and incidence, as well as the growth impact of annosus root rot on these plantations, transects were placed across the breadth of the stands at uniform intervals. From district maps with a scale of 2 inches = 1 mile, plots were predetermined at uniform intervals along each line. Permanent plots (1/25 a. circular) were established in January, 1984 and will be observed again in January, 1985. Location of the plots are shown in Figure 1.

Data were taken from each plot on numbers of pines, trees with top symptoms, trees with H. annosum conks, windthrows, non-annosus type conks, total tree heights, DBH and diameter growth in the last five years. In plantation 1, diameter growth was not taken. Samples of lateral roots for culturing root rot pathogens were taken from every fifth plot in plantations 31 and 9. Subsamples were cultured on orthophenylphenol medium.

Table 1 summarizes the data taken for each plantation.

PRELIMINARY RESULTS AND DISCUSSION

Preliminary results of the increment borings indicate that plantations 31 and 9 are not growing well. Average growth for the last five years was only 5/8 inch and 1/2 inch which converts to only 5" and 4" of diameter growth in 20 years. The trees in plantation 9 are not responding to release after 5 years. There is field evidence that plantation 31 was thinned three to four years ago yet it too is not responding. Eight percent of the trees in plantation 31 are windthrown. Despite the lack of growth, annosus conks and top symptoms (max. - 7 percent in plantation 31) are uncommon. Cold weather in December, 1983 and January, 1984 may have prevented conk formation which normally begins in late fall.

H. annosum was not isolated from any plots. Although not recovered, H. annosum was previously recorded by Forest Service Research. It would appear that the disease's effect is still being felt by the residual trees; they are not growing well. The density was not great enough on most of the circular plots to account for the small growth increment.

Total tree heights and DBH will be taken again next year in plantations 31 and 9 when volumes based on whole tree heights become available from the Kisatchie. A comparison of data will then be made.

Figure 1. Location of plantations 1, 9 and 31 surveyed for annosus root rot on Caney Ranger District (KNF) - January, 1984.

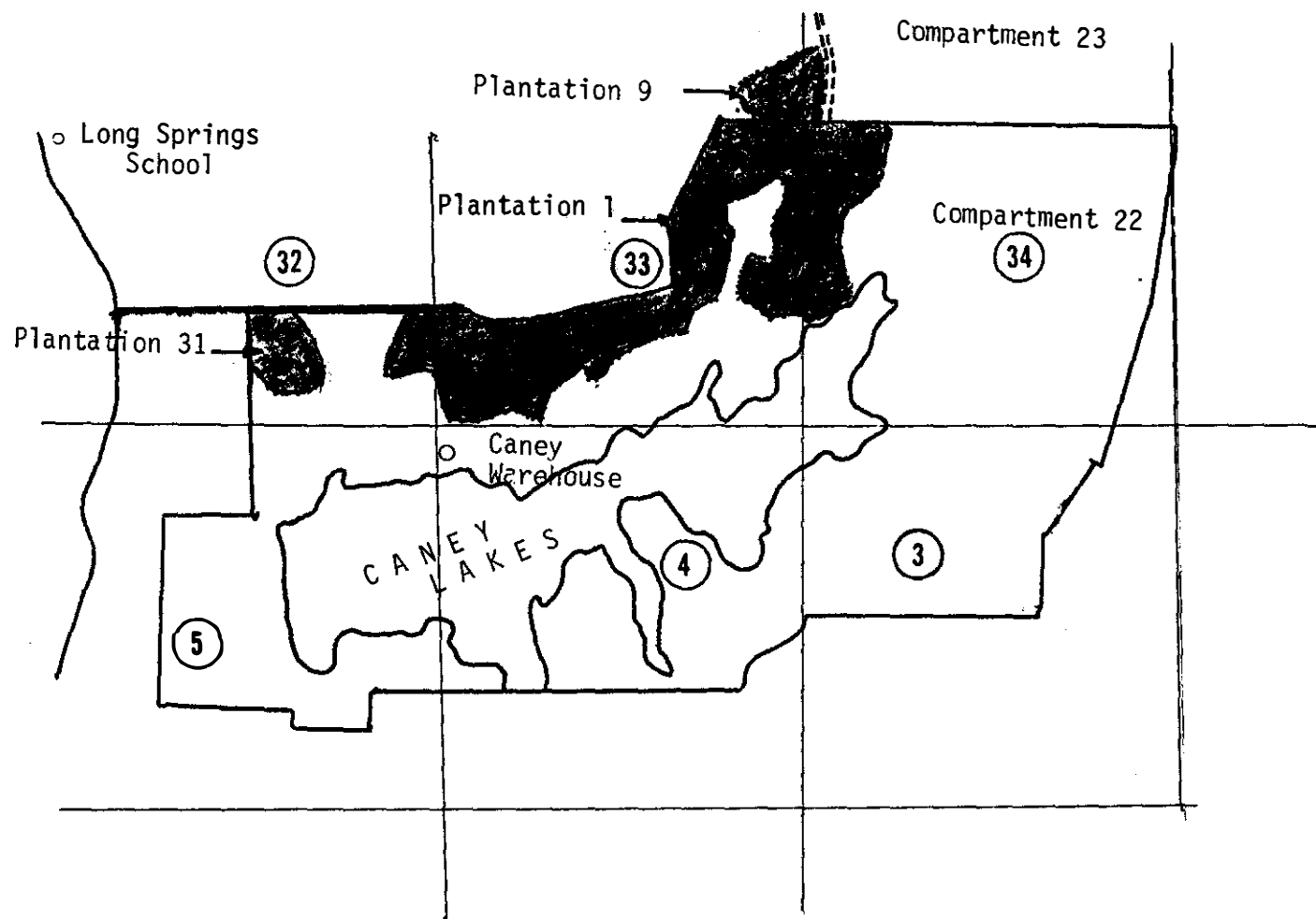


Table 1. Number of pine, pine with top symptoms, pine with annosus conks, windthrows, non-annosus type conks, culture results, total tree height, mean DBH and mean diameter growth in the last five years for three loblolly plantations on the Caney Ranger District - Kisatchie National Forest - January, 1984.

Plantation	No. of Pine	Top Symptoms	Annosus Conks	Windthrows	Non-Annosus Conks	Culture Results (H. annosus + or -)	Mean Total Tree Height (ft.)	Mean DBH (in.)	Mean Diam.(1/8") - last five years
1	55	1	0	0	0	-	87	15.3	-
9	66	2	0	3	1*	-	68	12.5	5
31	58	4	1	5	0	-	82	14.4	4

* *Phaeolus schweinitzii*

The complete lack of any type of conk or windthrow and only one tree with top symptoms suggests that plantation 1 is in better condition than the others and could be thinned in 3 to 4 years.

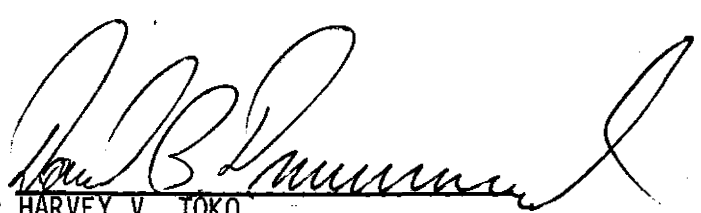
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